USER MANUAL

SEMANTIC SEARCH

Webparts for SharePoint™

Version 1.1

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1 Introduction

Semantic Search Webparts for SharePoint extend the standard SharePoint-Search with Semantic Web features to find documents quicker and more efficiently. They make use of a taxonomy that is enriched with semantic information. They guide users actively in the search process, offer alternative search possibilities and provide comprehensive ways to navigate in search hits.

This document contains all the information needed to install and use this product from **DIQA Projektmanagement GmbH**:

- Product overview,
- Administration guide, incl. pre-requisites, installation, and activation
- User guide including configuration, and
- Technical support.

1.1 Product Overview

The **Semantic Search Webparts** are an element of DIQA's findability solution for SharePoint. The solution provides products and an approach that leverages taxonomies and Semantic Web technologies to improve document retrieval in SharePoint. The typical steps of the approach are explained in the following.

1.1.1 Provision of taxonomies in SharePoint

The taxonomy represents the conceptual model of your business. It provides the required knowledge to improve navigation, as well as tagging and search of documents. Typical sources of taxonomies are industry standards, product lifecycle management systems, or terminology management systems.

Our SharePoint solution "**GRASP**" helps to integrate external taxonomies, to manage taxonomies directly in SharePoint and to enrich them with semantic information.

1.1.2 Tagging of documents

Assign taxonomies and term sets to managed metadata columns that are used in lists or libraries. You can classify your documents manually by tagging them with terms (e.g. products, customers, regions, topics etc.). Alternatively you can automate this process (requires partner products).

1.1.3 Semantic Search

The Semantic Search Webparts extend the standard SharePoint-Search with Semantic Web features to find documents quicker and more efficiently. The Semantic Search Webparts make use of the taxonomy that is enriched with semantic

information. They guide users actively in the search process, offer alternative search possibilities and provide comprehensive ways to navigate in search hits.

1.2 What's New?

1.2.1 Version 1.1

- **RelatedTerms Webpart**: Since version 1.4 GRASP supports non-hierarchical relations between terms. The RelatedTerms webpart can make use of this knowledge in the context of search. For a given term, it displays further terms that can guide the user to other search results, that are indirectly related to the search term initially provided.

1.2.2 Version 1.0

1. **TermSuggester Webpart**: This webpart supports the user while she is typing the search query into the search box. Its intelligent matching algorithm suggests terms from the taxonomy that contain parts of the search query in their labels and synonyms.
2. **MatchingTerms Webpart**: This webpart lists all matching terms for a given search term. For each matching term a tooltip provides is additional information like the synomyms, the term set or the parent terms.
3. **TermTreeRefiner Webpart**: This webpart extends the standard refiner webpart and visualizes the terms in the context of the term-tree. Users can select terms in the treeview to drill down or drill up in the search results.
4. **Support for poly-hierarchies**: If GRASP is also installed the Semantic Search Webparts also properly handle terms that have multiple parents.

2 Administration Guide

2.1 Software prerequisites

Semantic Search Webparts requires **SharePoint Server 2010**.

In order to use poly-hierarchies in the Semantic Search webparts or if you want to access the URIs of terms GRASP v1.3 or newer is required. The RelatedTerms webpart requires GRASP v1.4 or later, because it introduces the notion of non-hierarchical relations between terms.

Obtain GRASP from DIQA:

- http://diqa-pm.com/en/GRASP

Client PC Requirements:

1. Windows Vista/Windows 7
2. Microsoft Internet Explorer 8, 9 or later

> **Note:**
>
> Currently there are compatibility issues between SharePoint 2010 and Internet Explorer 11. When running Internet Explorer 11 and experiencing some problems please use Internet Explorer's compatibility mode for your SharePoint site!!!!

2.2 Installation

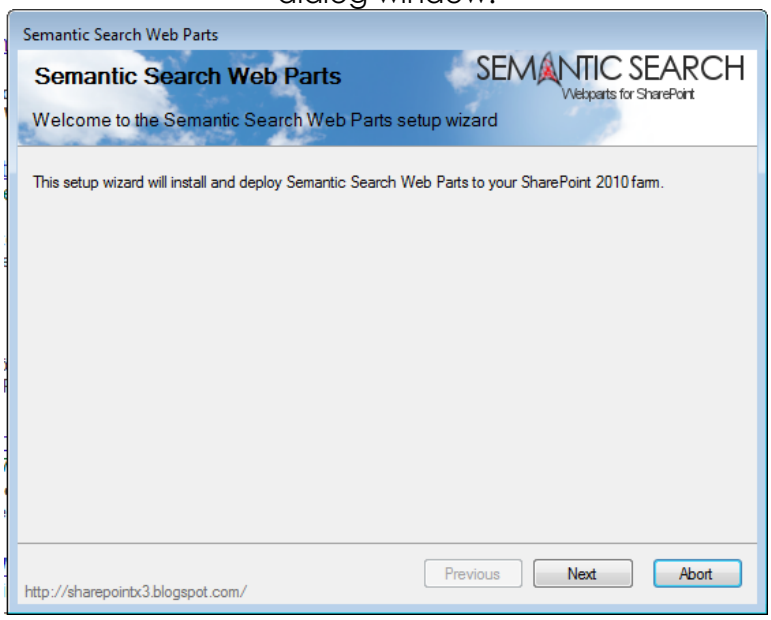
In order to provide your SharePoint users with the features of Semantic Search Webparts execute the installation wizard *(*SemanticSearchWebParts-XXX.exe) and configure a search pages making use of the new webparts. The following instructions guide you through this process.

1. Download the latest version of Semantic Search Webparts from: http://diqa-pm.com/en/Semantic_Search_Webparts and store it as local file on your server, e.g. "SemanticSearchWebParts-XXX.exe".

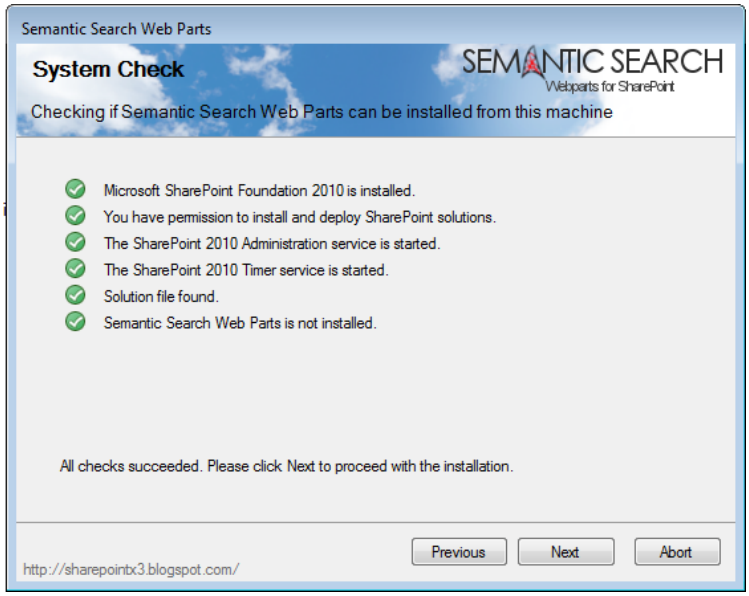
Note:

The evaluation version of Semantic Search Webparts is fully functional for 30 days. If you want to continue to use Semantic Search Webparts after this period has elapsed you must buy a valid license key from DIQA. Please contact: info@diqa-pm.de

2. Click on the downloaded file (e.g. "SemanticSearchWebParts-XXX.exe ") and launch the Installation Wizard with administrator privileges. This will open in a dialog window:

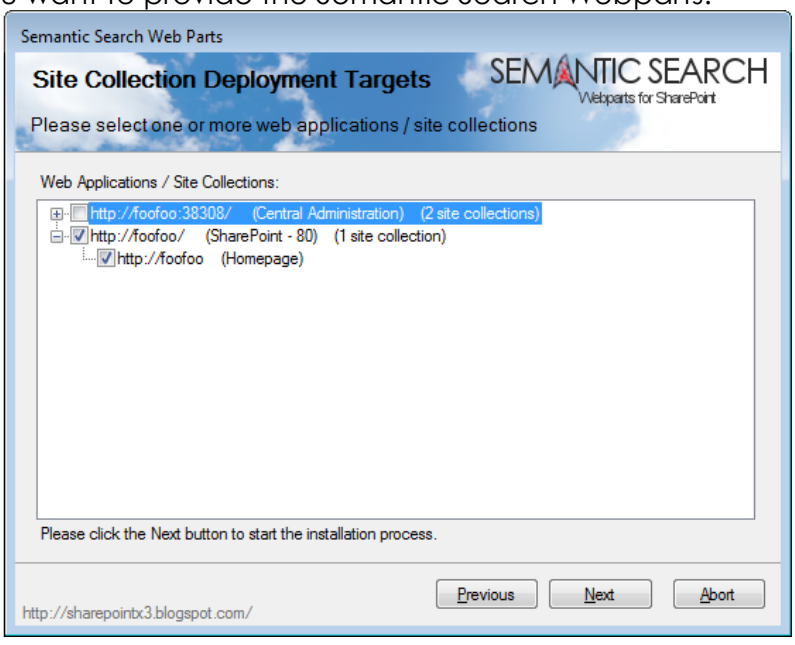

Semantic Search Web Parts
Semantic Search Web Parts
SEMANTIC SEARCH
Webparts for SharePoint
Welcome to the Semantic Search Web Parts setup wizard
This setup wizard will install and deploy Semantic Search Web Parts to your SharePoint 2010 farm.
Previous
Next
Abort
http://sharepointx3.blogspot.com/

3. Click on next to perform the system check that should indicate that the Semantic Search Webparts can be installed:


Semantic Search Web Parts
System Check
SEMANTIC SEARCH
Webparts for SharePoint
Checking if Semantic Search Web Parts can be installed from this machine
Microsoft SharePoint Foundation 2010 is installed.
You have permission to install and deploy SharePoint solutions.
The SharePoint 2010 Administration service is started.
The SharePoint 2010 Timer service is started.
Solution file found.
Semantic Search Web Parts is not installed.
All checks succeeded. Please click Next to proceed with the installation.
Previous
Next
Abort
http://sharepointx3.blogspot.com/

4. Click on next to see the End-User License Agreement (EULA). If you agree with the license agreement then tick the check box named "I accept the terms in the License Agreement" and click on next.

5. You will see a list of all site-collections of your SharePoint farm. Select the ones in which you want to provide the Semantic Search Webparts:

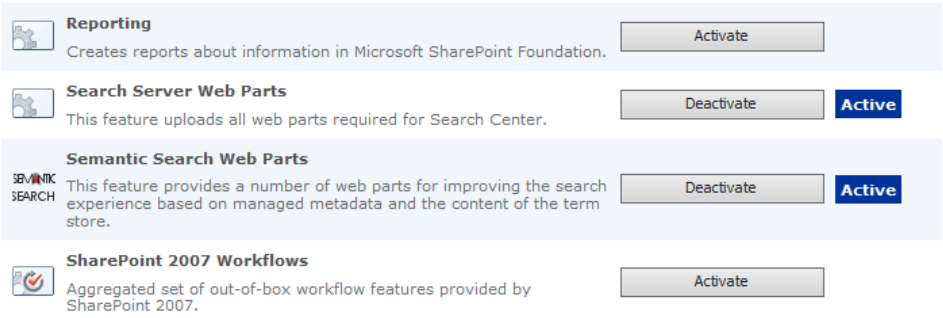

Semantic Search Web Parts
Site Collection Deployment Targets
SEMANTIC SEARCH
Webparts for SharePoint
Please select one or more web applications / site collections
Web Applications / Site Collections:
http://foofoo:38308/ (Central Administration) (2 site collections)
http://foofoo/ (SharePoint - 80) (1 site collection)
http://foofoo (Homepage)
Please click the Next button to start the installation process.
Previous
Next
Abort
http://sharepointx3.blogspot.com/

6. Click on next to initiate the deployment process.

7. Click on next get the list of all SharePoint sites in which the webparts have been deployed.

8. Click on the "close"-button to close the Installation Wizard.

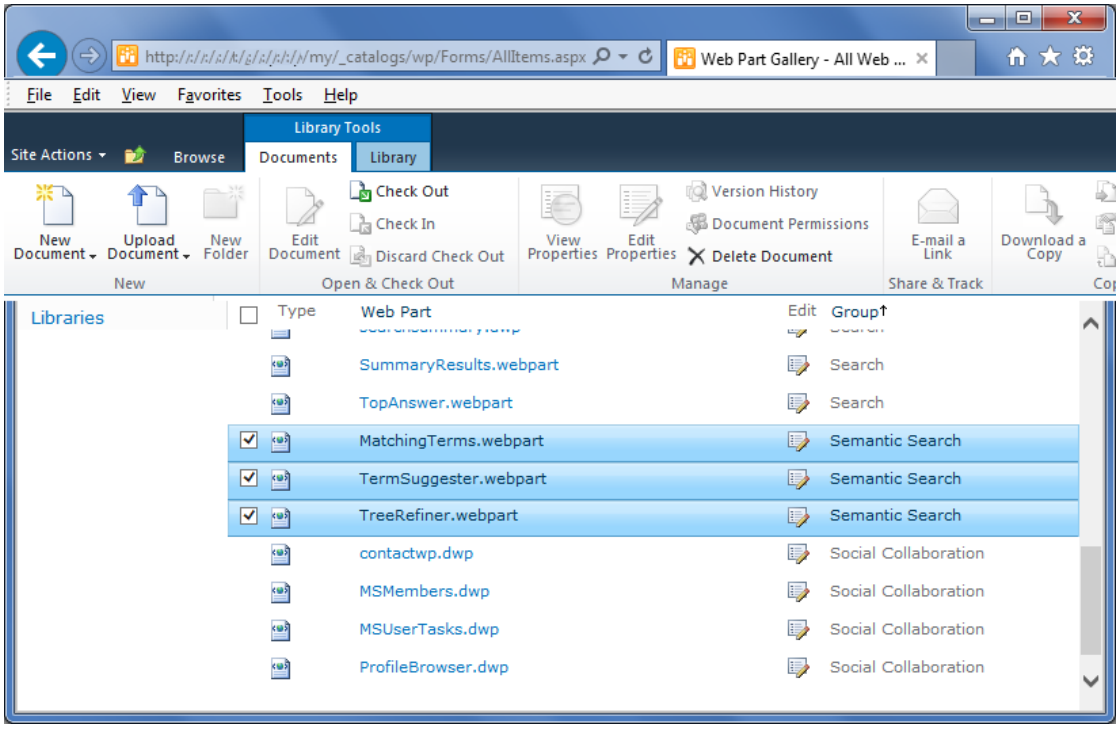
9. Go to the site settings of one of the selected site collections as site collection administrator and go to "*Site Collection Administration > Site collection features*". After the installation the "Semantic Search Webparts" feature should by activated by default. If not click on "Activate" to enable its functionality.


Reporting
Creates reports about information in Microsoft SharePoint Foundation.
Activate
Search Server Web Parts
This feature uploads all web parts required for Search Center.
Deactivate
Active
Semantic Search Web Parts
This feature provides a number of web parts for improving the search experience based on managed metadata and the content of the term store.
Deactivate
Active
SharePoint 2007 Workflows
Aggregated set of out-of-box workflow features provided by SharePoint 2007.
Activate

2.3 De-Installation

In order to remove "Semantic Search Webparts" from your SharePoint Farm start the Installation Wizard with administrator privileges. While checking the system status, the installer will detect that the "Semantic Search Webparts" are already installed and will offer two options: "Repair" and "Remove". After selecting "Remove" they will be removed from all relevant site collections.

Sometimes the web parts are not properly removed from the system. To mitigate that please visit the site settings of those site collections in which the "Semantic Search Webparts" have been used. Under the "Galleries > Web parts" you might still find the webparts. They are listed in the "Semantic Search" group. For easier location please sort the list by "Group". Now select the check box of the web parts and click "Delete Document" in the ribbon.


Web Part Gallery - All Web ...
File Edit View Favorites Tools Help
Site Actions
Browse
Library Tools
Documents
Library
New Document
Upload Document
New Folder
Edit Document
Check Out
Check In
Discard Check Out
View Properties
Edit Properties
Version History
Document Permissions
Delete Document
E-mail a Link
Download a Copy
New
Open & Check Out
Manage
Share & Track
Libraries
Type
Web Part
Edit
Group
SummaryResults.webpart
Search
TopAnswer.webpart
Search
MatchingTerms.webpart
Semantic Search
TermSuggester.webpart
Semantic Search
TreeRefiner.webpart
Semantic Search
contactwp.dwp
Social Collaboration
MSMembers.dwp
Social Collaboration
MSUserTasks.dwp
Social Collaboration
ProfileBrowser.dwp
Social Collaboration

3 User Guide

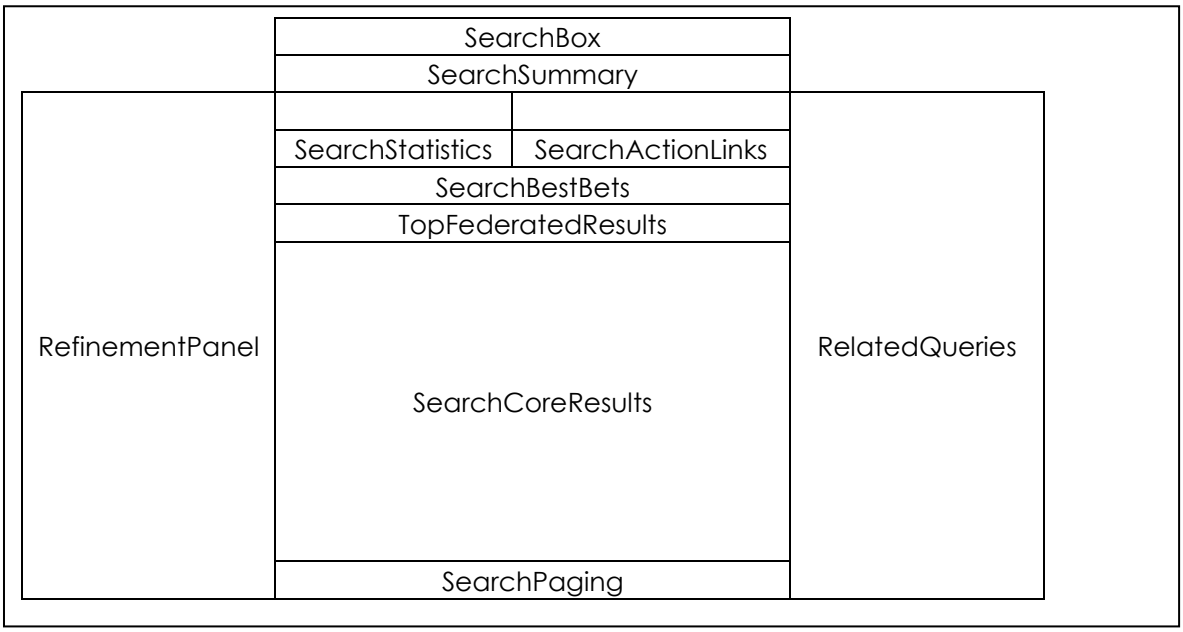
After the installation of the "Semantic Search Webparts" and their activation for a site collection you can insert the following web parts into SharePoint pages, wiki pages and even search sites, such as the Basic Search Center.

- TermSuggester Webpart
- MatchingTerms Webpart
- TermTreeRefiner Webpart
- RelatedTerm Webpart

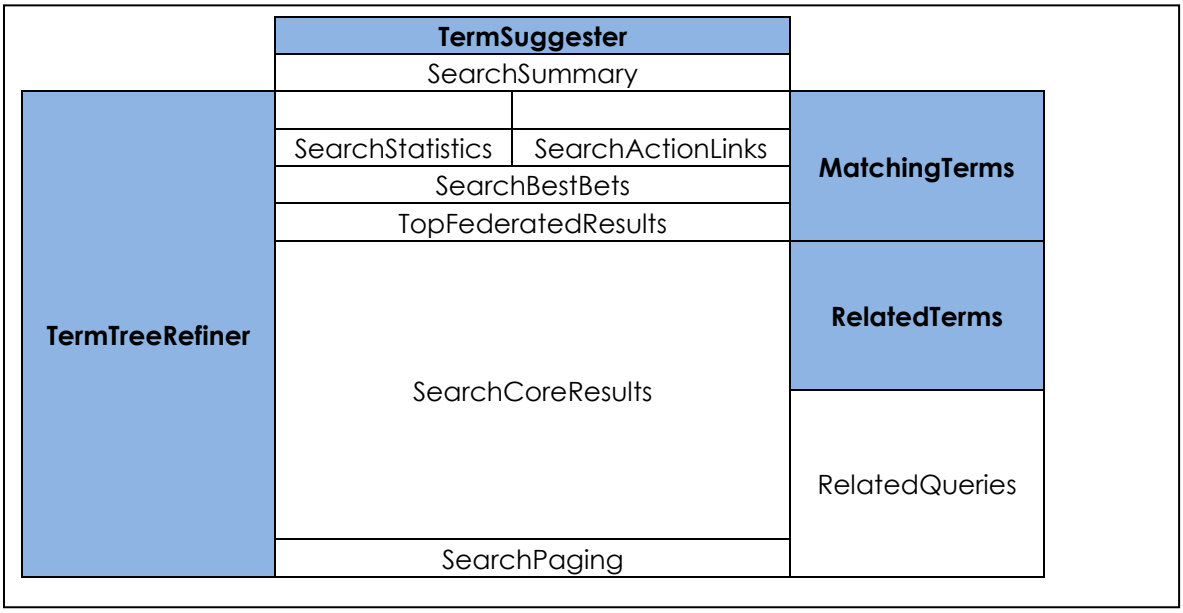
All these webparts improve the search experience by providing knowledge (represented in taxonomies from the term store) during the formulation of a search request or while displaying search results.

3.1 Preparations

For explaining the webparts, their configuration and their application we will reconfigure the Basic Search Center to make use of the new "Semantic Search Webparts". By default the layout of the Basic Search Center result page looks like this:



We will reconfigure it to contain the following set of webparts:



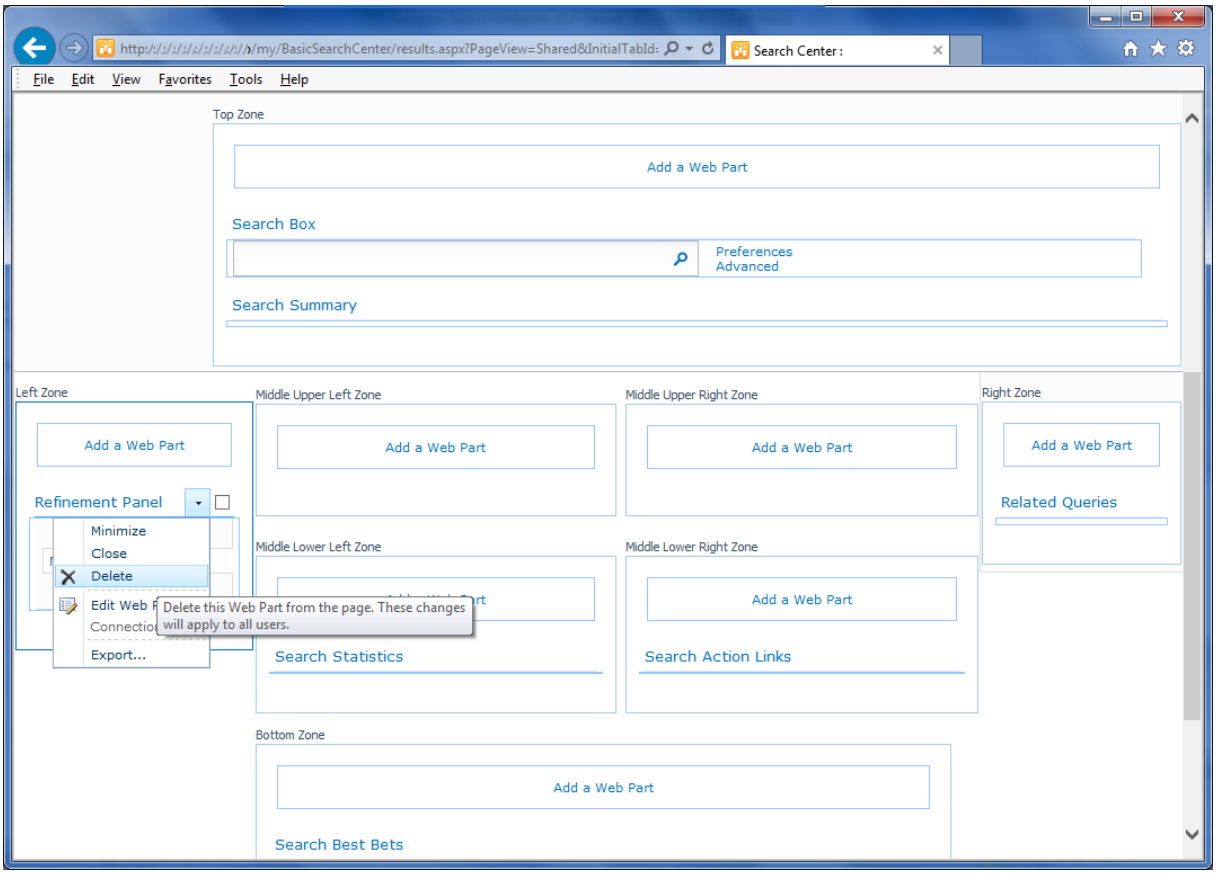
To create the basic Search Center site simply find the "create new site" entry in the "Site Actions" menu, then select the "Basic Search Center" site template, and provide a title and URL, e.g.

- http://sharepoint/my/BasicSearchCenter

The search results page can be found as

- http://sharepoint/my/BasicSearchCenter/result.aspx

Edit this page via "Page > Edit" and remove the original SearchBox and RefinementPanel webparts. This can be achieved via their context menus.

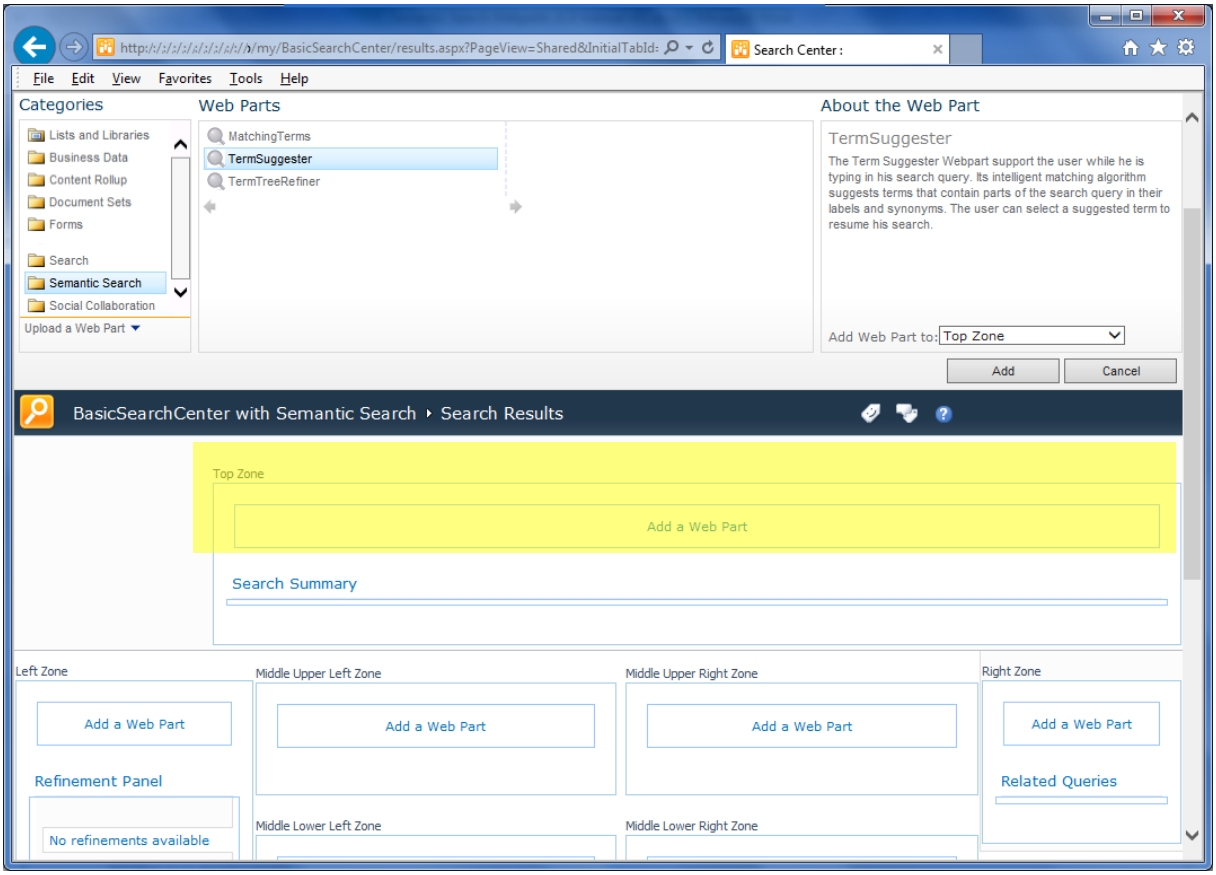


3.2 TermSuggester Webpart

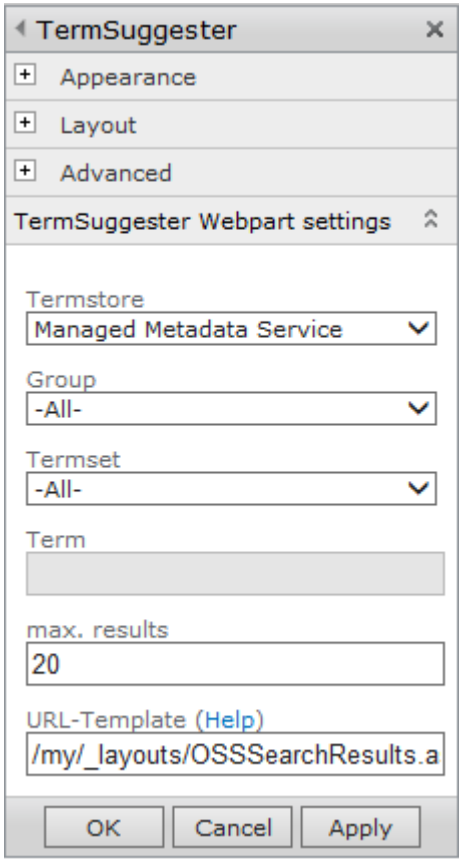
The TermSuggester webpart replaces the original SearchBox and adds autocomplete functionality for identifying taxonomy terms, while entering a search query.

3.2.1 Configuration

We recommend adding the TermSuggester webpart on the top of the search page, into the "Top zone".



Using the webpart's context-menu users can open the configuration panel that displays a number of general layout settings, as well as some settings specific for the functionality of this web part.



Since the webpart suggests terms from the termstore users can configure from which termstore the webpart will receive possible terms. Restricting the scope even further to particular groups of termsets, and even to subterms of a specific term in a termset can also be defined.

The value for "max. results" defines how many suggestions should be displayed at most.

In the last configuration field "URL-template" users can enter a URL that will be called once a suggested term is selected or the user presses the enter key. Per default this value is present:

- /my/_layouts/OSSSearchResults.aspx?k={{$termLabel}}

This is the standard SharePoint search result page for the current site collection. A relative URL will be resolved against the current host and all parameters will be substituted by the actual values.

- http://sharepoint/my/_layouts/OSSSearchResults.aspx?k={{$termLabel}}

Find the list of possible parameters in Section 3.6.

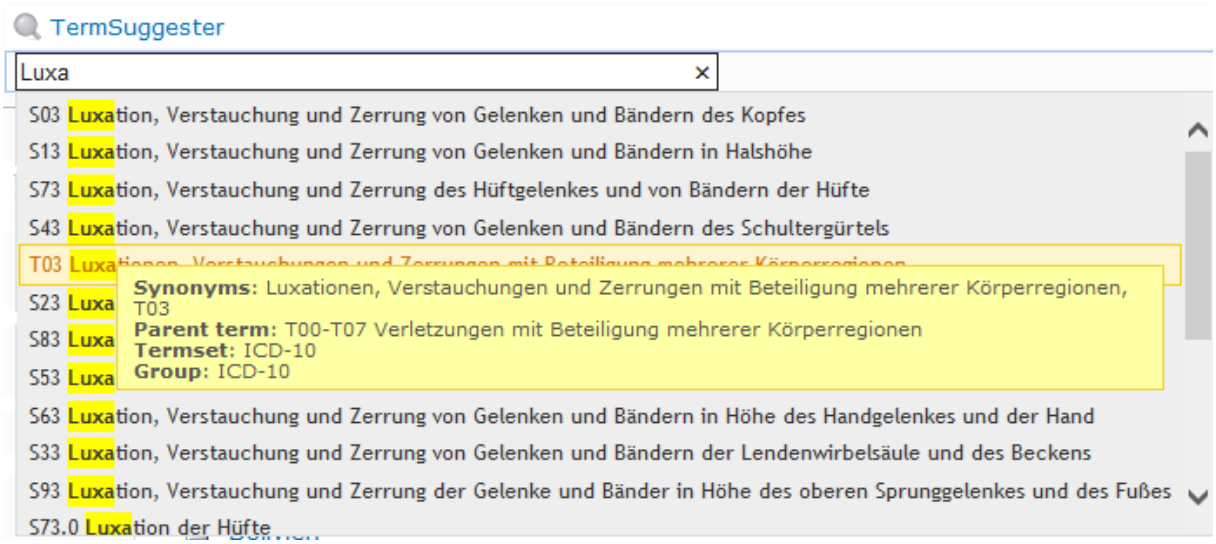
Since users typically expect to stay on a search result pages when changing the search term we will modify the URL-Template to read

- /my/BasicSearchCenter/result.aspx?k={{$termLabel}}

3.2.2 Usage

The TermSuggester can be used in the same way as the standard SharePoint SearchBox. Users enter search terms into the text field and when clicking the search button or hitting "enter", a search with these search terms is initiated. When the user stops typing for about one second the added functionality is triggered. The TermSuggester retrieves a list of terms from the termstore, that match the current user input. The webpart finds matches in both, the default label, as well as the alternative labels of terms. Clicking on a term selects it and triggers the query for this term.

When hovering with the mouse over one of the terms from the list of suggestions a tool tip shows all relevant details about this term, e.g. to disambiguate a label that is used by multiple terms.

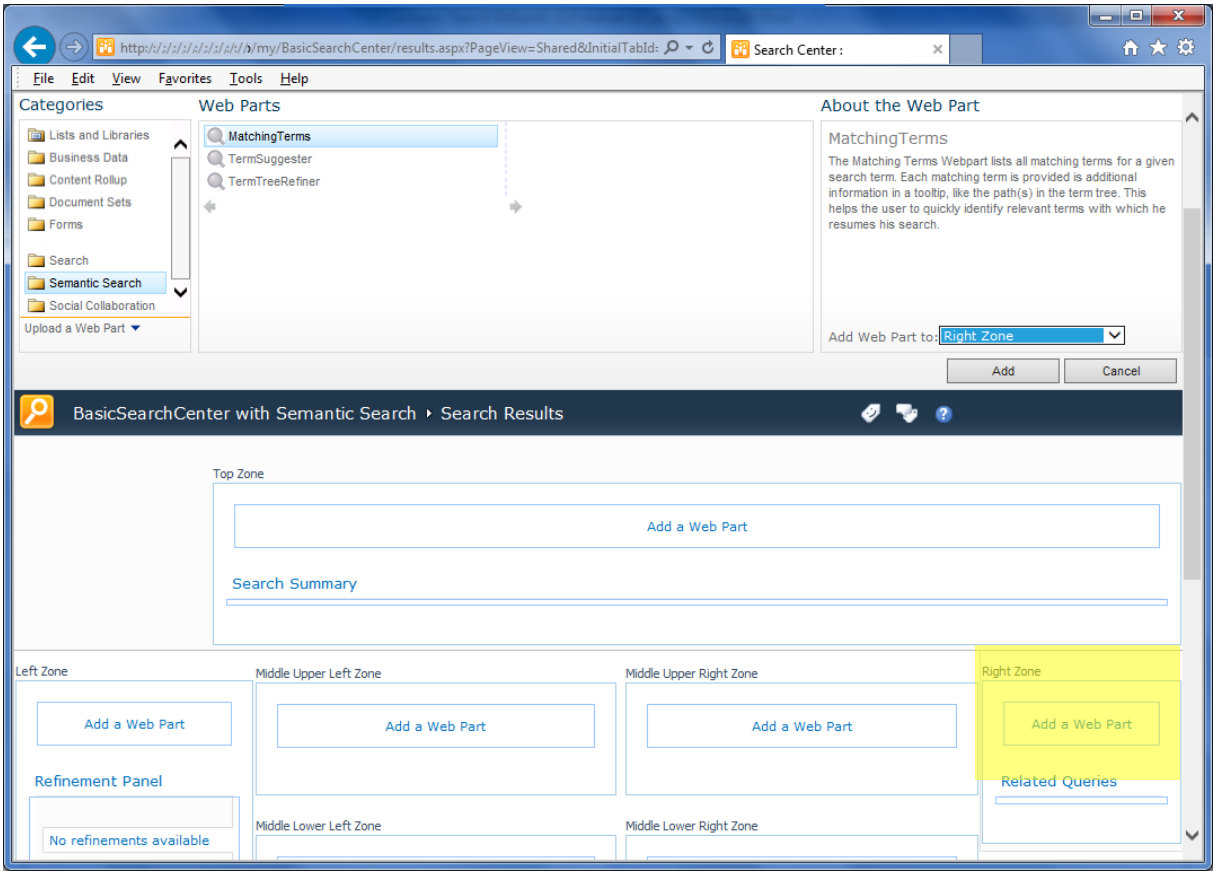

TermSuggester
Luxa
S03 Luxation, Verstauchung und Zerrung von Gelenken und Bändern des Kopfes
S13 Luxation, Verstauchung und Zerrung von Gelenken und Bändern in Halshöhe
S73 Luxation, Verstauchung und Zerrung des Hüftgelenkes und von Bändern der Hüfte
S43 Luxation, Verstauchung und Zerrung von Gelenken und Bändern des Schultergürtels
T03 Luxa
Synonyms: Luxationen, Verstauchungen und Zerrungen mit Beteiligung mehrerer Körperregionen, T03
Parent term: T00-T07 Verletzungen mit Beteiligung mehrerer Körperregionen
Termset: ICD-10
Group: ICD-10
S23 Luxa
S83 Luxa
S53 Luxa
S63 Luxation, Verstauchung und Zerrung von Gelenken und Bändern in Höhe des Handgelenkes und der Hand
S33 Luxation, Verstauchung und Zerrung von Gelenken und Bändern der Lendenwirbelsäule und des Beckens
S93 Luxation, Verstauchung und Zerrung der Gelenke und Bänder in Höhe des oberen Sprunggelenkes und des Fußes
S73.0 Luxation der Hüfte

3.3 MatchingTerms Webpart

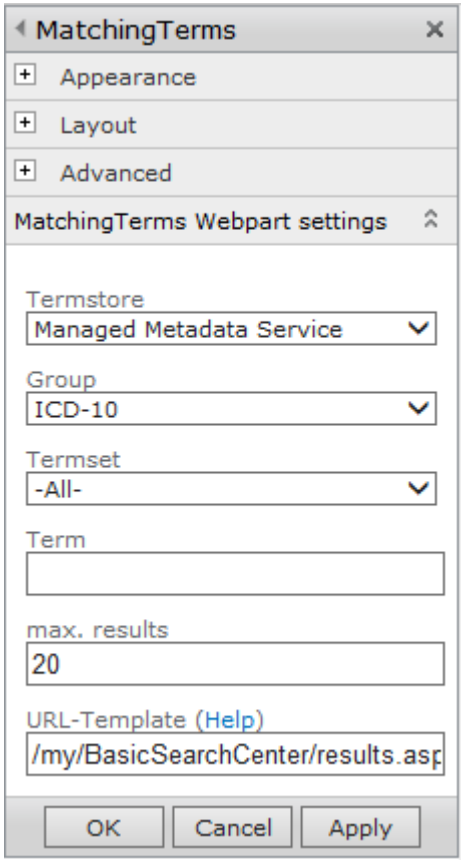
The MatchingTerms webpart is very similar to the TermSuggester webpart with one major difference. It also retrieves terms similar to an entered search term. It uses the same matching algorithm and has the same configuration options. But instead of displaying the matching terms as suggestions whilonstyping, the MatchingTerms webpart displays them as a list of hyperlinks on the search result page.

3.3.1 Configuration

We recommend adding the MatchingTerms webpart at the right of the search result page, into the "Right zone", on top of "RelatedQueries".



Using the webpart's context-menu users can open the configuration panel that displays a number of general layout settings, as well as some settings specific for the functionality of this web part.



Since the webpart retrieves matching terms from the taxonomy in the termstore users can define, which termstore to use and can also restrict the group, termsets and even root-nodes to look for matching terms.

The value for "max. results" defines how many matching terms should be listed.

In the last configuration field "URL-template" users can enter a URL that will be used for construction the hyperlinks for all matching terms. Per default this value is present:

- /my/_layouts/OSSSearchResults.aspx?k={{$termLabel}}

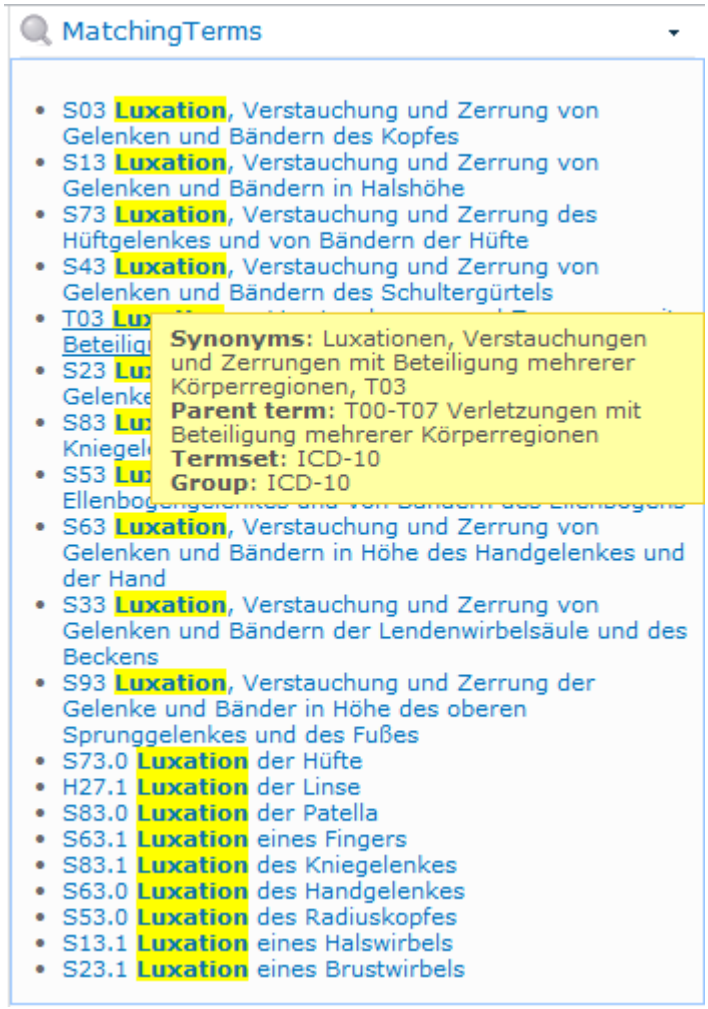
This is the standard SharePoint search result page for the current site collection. As for the TermSuggester webpart relative URLs are allowed and the webpart will interpret a number of parameters (cf. Section 3.6 for details).

It is not unreasonable to also choose the current URL of the Basic Search Center result page as the target for the links that are created for the matching terms, i.e. we will modify the URL-Template to read

- /my/BasicSearchCenter/result.aspx?k={{$termLabel}}

3.3.2 Usage

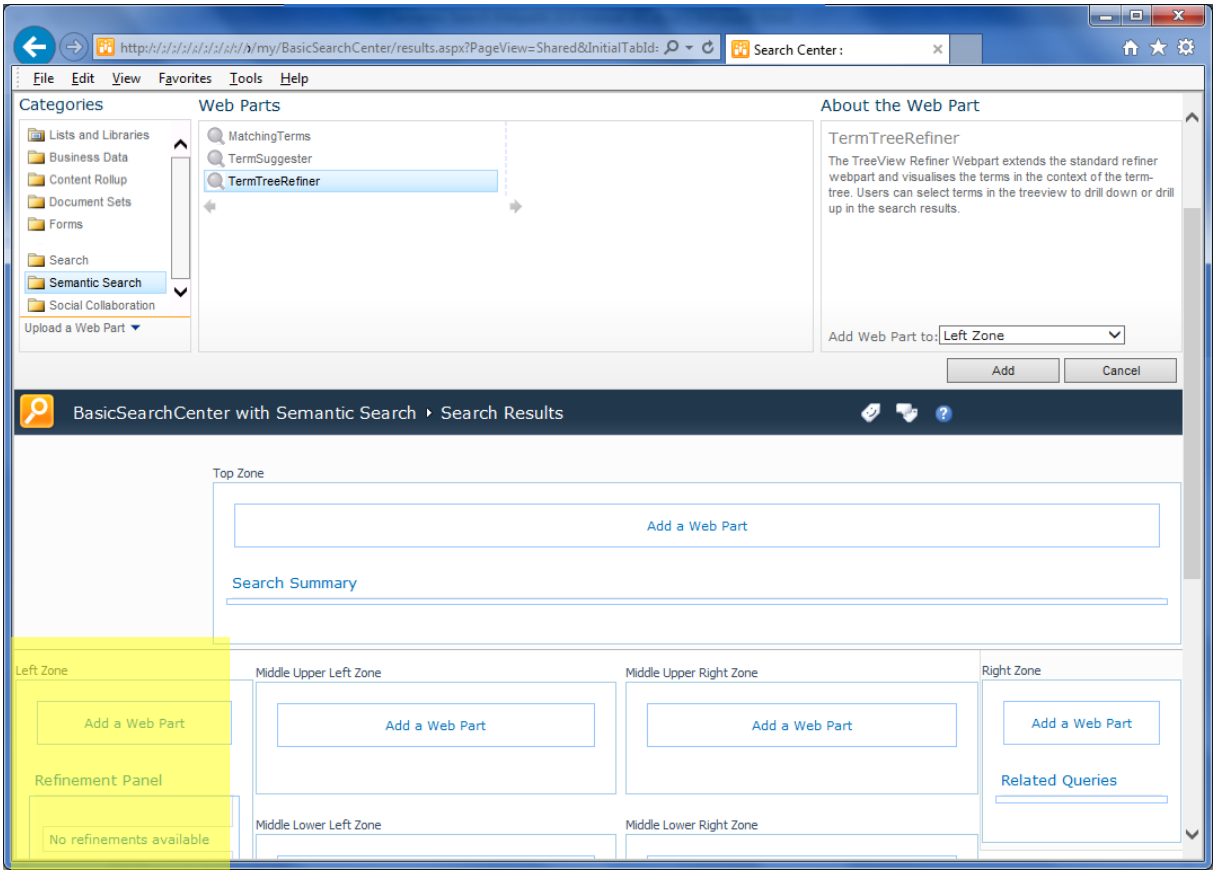
Using the MatchingTerms webpart is fairly simple. It displays a list of terms and offers the same tool tips as the TermSuggester. Clicking on a term opens the associated URL, i.e. triggers another search.


MatchingTerms
S03 Luxation, Verstauchung und Zerrung von Gelenken und Bändern des Kopfes
S13 Luxation, Verstauchung und Zerrung von Gelenken und Bändern in Halshöhe
S73 Luxation, Verstauchung und Zerrung des Hüftgelenkes und von Bändern der Hüfte
S43 Luxation, Verstauchung und Zerrung von Gelenken und Bändern des Schultergürtels
Synonyms: Luxationen, Verstauchungen und Zerrungen mit Beteiligung mehrerer Körperregionen, T03
Parent term: T00-T07 Verletzungen mit Beteiligung mehrerer Körperregionen
Termset: ICD-10
Group: ICD-10
S63 Luxation, Verstauchung und Zerrung von Gelenken und Bändern in Höhe des Handgelenkes und der Hand
S33 Luxation, Verstauchung und Zerrung von Gelenken und Bändern der Lendenwirbelsäule und des Beckens
S93 Luxation, Verstauchung und Zerrung der Gelenke und Bänder in Höhe des oberen Sprunggelenkes und des Fußes
S73.0 Luxation der Hüfte
H27.1 Luxation der Linse
S83.0 Luxation der Patella
S63.1 Luxation eines Fingers
S83.1 Luxation des Kniegelenkes
S63.0 Luxation des Handgelenkes
S53.0 Luxation des Radiuskopfes
S13.1 Luxation eines Halswirbels
S23.1 Luxation eines Brustwirbels

3.4 TermTreeRefiner Webpart

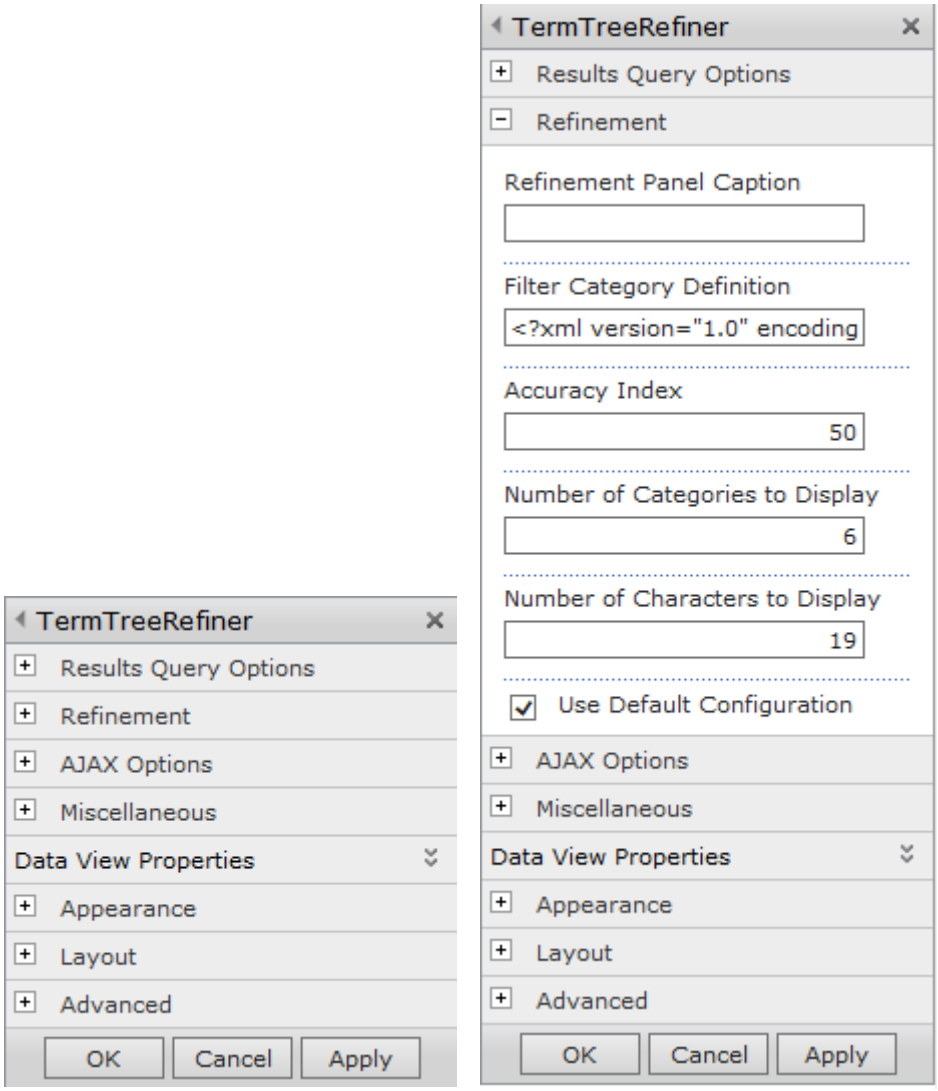
3.4.1 Configuration

We recommend adding the TermTreeRefiner webpart at the left of the search result page, into the "Left zone", replacing the original "RefinementPanel".



Note: In order to have sufficient input for populating the refiner, the page must also contain the search core results webpart.

Using the webpart's context-menu users can open the configuration panel that displays a long list of configuration options. All present options are identical to th ones available in the standard SharePoint RefinementPanel webpart (cf. http://technet.microsoft.com/en-us/library/gg549985%28v=office.14%29.aspx for documentation).



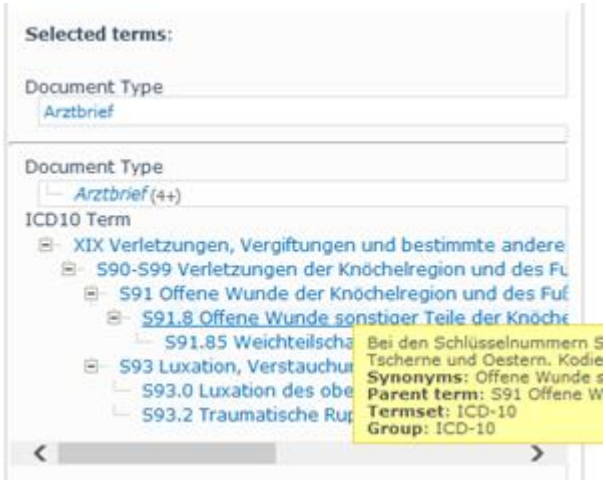
There is a single difference between the configurations of the standard RefinementPanel and the TermTreeRefiner. The managed metadata category is missing in the default configuration for the filter categories of the TermTreeRefiner. The TermTreeRefiner always shows the terms from managed metadata properties in the result set. Thus, the original filter category definition would lead to a lot of duplicated information in the panel.

3.4.2 Usage

The TermTreeRefiner is used in the same way as the standard RefinementPanel. Instead of listing a number of terms for managed metadata columns, the new web part displays the taxonomies, in which these terms occur and also indicates how often they occur in the current result set.

Document Type
Behandlungsrichtlinie (1+)
Arztbrief (4+)
Arbeitsunfähigkeitsbescheinigung (4+)
ICD10 Term
XIX Verletzungen, Vergiftungen und bestimmte andere
S90-S99 Verletzungen der Knöchelregion und des Fu
S90 Oberflächliche Verletzung der Knöchelregion u
S91 Offene Wunde der Knöchelregion und des Fuß
S91.8 Offene Wunde sonstiger Teile der Knöche
S91.84 Weichteilschaden I. Grades bei gesch
S91.85 Weichteilschaden II. Grades bei gesc
S93 Luxation, Verstauchung und Zerrung der Gele
S93.0 Luxation des oberen Sprunggelenkes (6+)
S93.2 Traumatische Ruptur von Bändern in Höh

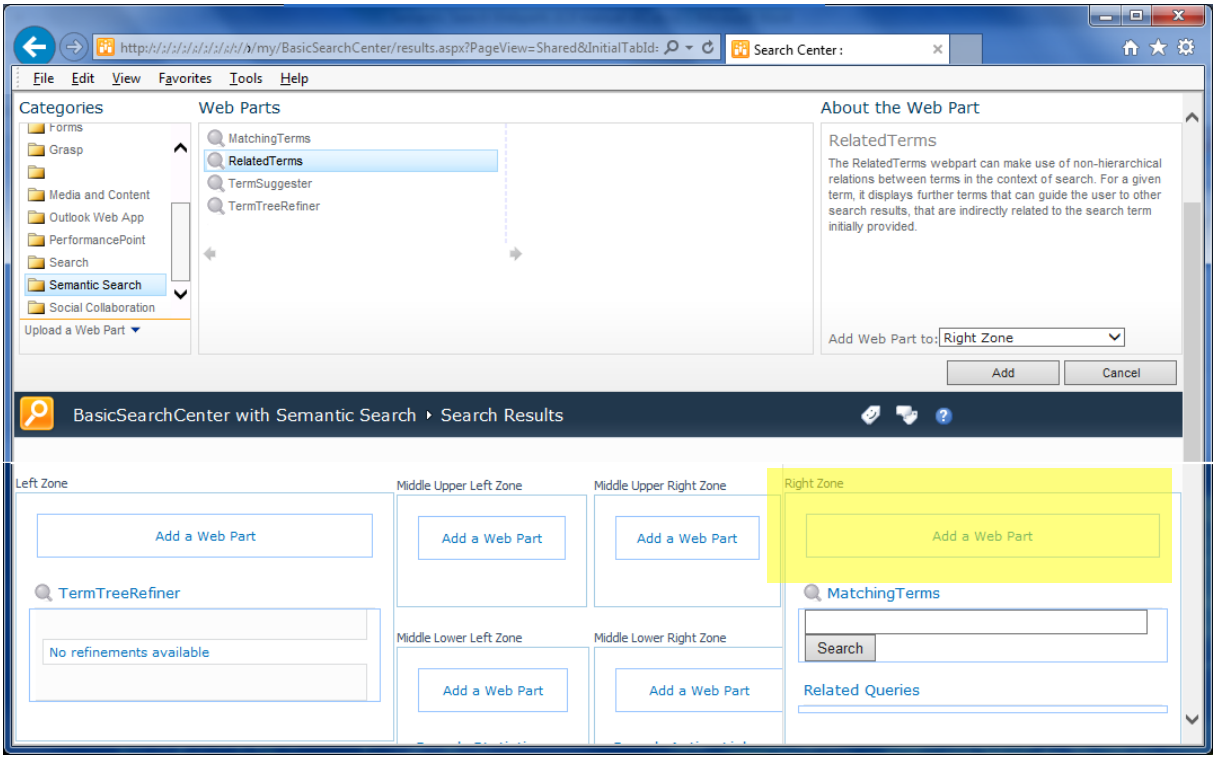
In the given screenshot we see two managed metadata properties "Document Type" and "ICD10 Term". The ICD10 terms are organized hierarchically and thus a tree of terms is displayed. After clicking on one of the terms (in this case "Arztbrief") the search is repeated with an additional restriction, i.e. drill down. All restrictions are listed at the top of the refinement web part under "selected terms".



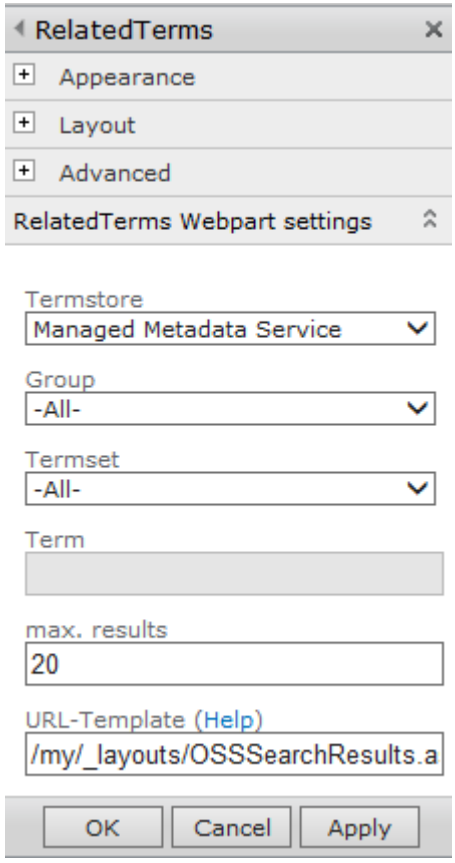
3.5 RelatedTerms Webpart

3.5.1 Configuration

We recommend adding the RelatedTerms webpart to the right hand side of the search result page, into the "Right zone", on top of "RelatedQueries". It can be placed on top of or below the MatchingTerms webpart, if both are present.



After the webpart has been placed on the page, its parameters can be configured. Using the webpart's context-menu users can open the configuration panel. Besides sections for general layout settings it also contains a section with settings specific for the functionality of this web part.



Since the webpart retrieves the information about related terms from the termstore users can define, which termstore to use to retrieve them. Additionally, the search for related terms can be restricted to individual groups, termsets and even root-nodes.

The value for "max. results" defines how many related terms should be listed.

In the last configuration field "URL-template" users can enter a URL that will be used for constructing the hyperlinks for the found terms. Per default this value is present:

- /my/_layouts/OSSSearchResults.aspx?k={{$termLabel}}

This is the standard SharePoint search result page for the current site collection. As for the other webparts relative URLs are allowed and the webpart will interpret a number of parameters (cf. Section 3.6 for details).

It is not unreasonable to also choose the current URL of the Basic Search Center result page as the target for the links that are created for the matching terms, i.e. we will modify the URL-Template to read

- /my/BasicSearchCenter/result.aspx?k={{$termLabel}}

3.5.2 Usage

Using the RelatedTerms webpart is fairly easy, once a SharePoint administrator has properly configured it. On a search result page it displays a list of terms that are related to an entered search term. Also it checks for the terms that are used to tag the result documents, and displays terms related to them.

Like the other Semantic Search web parts it also offers informative tool tips for each listed term. Clicking on a term opens the associated URL, i.e. triggers another search, with that term as its focus.

3.6 URL Template

The TermSuggester and MatchingTerm Webparts provide a configuration for defining the target URL of a search. While entering the URLs users can insert variable parts that are determined by the selected terms. The variables follow the following syntax: {{$variable}}, where variable can be one of four alternatives:

- **searchTerm**: This variable is only relevant for TermSuggester. It represents the text entered in the search box. If a *term* has been selected this is identical to the default label of the term
- **termLabel**: This variable represents the default label of the selected term.
- **termGUID**: This variable represents the GUID of the selected term from the term store.
- **termURI**: This variable represents the URI of the selected term, as it is stored in the term store. Since SharePoint does not support URIs for terms out-of-the-box, this feature is only available for taxonomies that have been imported with GRASP.

All webparts check the **k**-paramter of the query-string of the page URL, when the page loads to determine the base-terms for their algorithms, e.g. for finding matching terms. A typical URL looks like this

- http://sharepoint/my/BasicSearchCenter/results.aspx?**k**=Leonardo%20da%20Vinci

The MatchingTerms and RelatedTerms webparts additionally check the URL's query string for a parameter with the name **termID** and assume that the GUID of an actual term is provided in this parameter. In the URL field of the webparts you might want to pass the term GUID as a **termID** parameter, e.g.:

- /my/BasicSearchCenter/results.aspx?k={{$termLabel}}&**termID**={{$**termGUID**}}

In this way they can unambiguously identify a term from the term store and act appropriately, e.g. only show matching terms for this single term, not for other terms that might have the same default label.

4 Technical Support

4.1 Download new releases of Semantic Search Webparts

You find new releases of the Semantic Search Webparts in the DIQA-download area:

http://downloads.diqa-pm.com/free/sems_releases/

4.2 Support inquiries

If you have issues with the software then please contact this email address: info@diqa-pm.de.

4.3 Buying a license

The evaluation version of the Semantic Search Webparts is fully functional for 30 days. If you want to continue to use the Semantic Search Webparts after this period has elapsed you must buy a valid license key from DIQA at: info@diqa-pm.de